

NETCOM

Phase 1

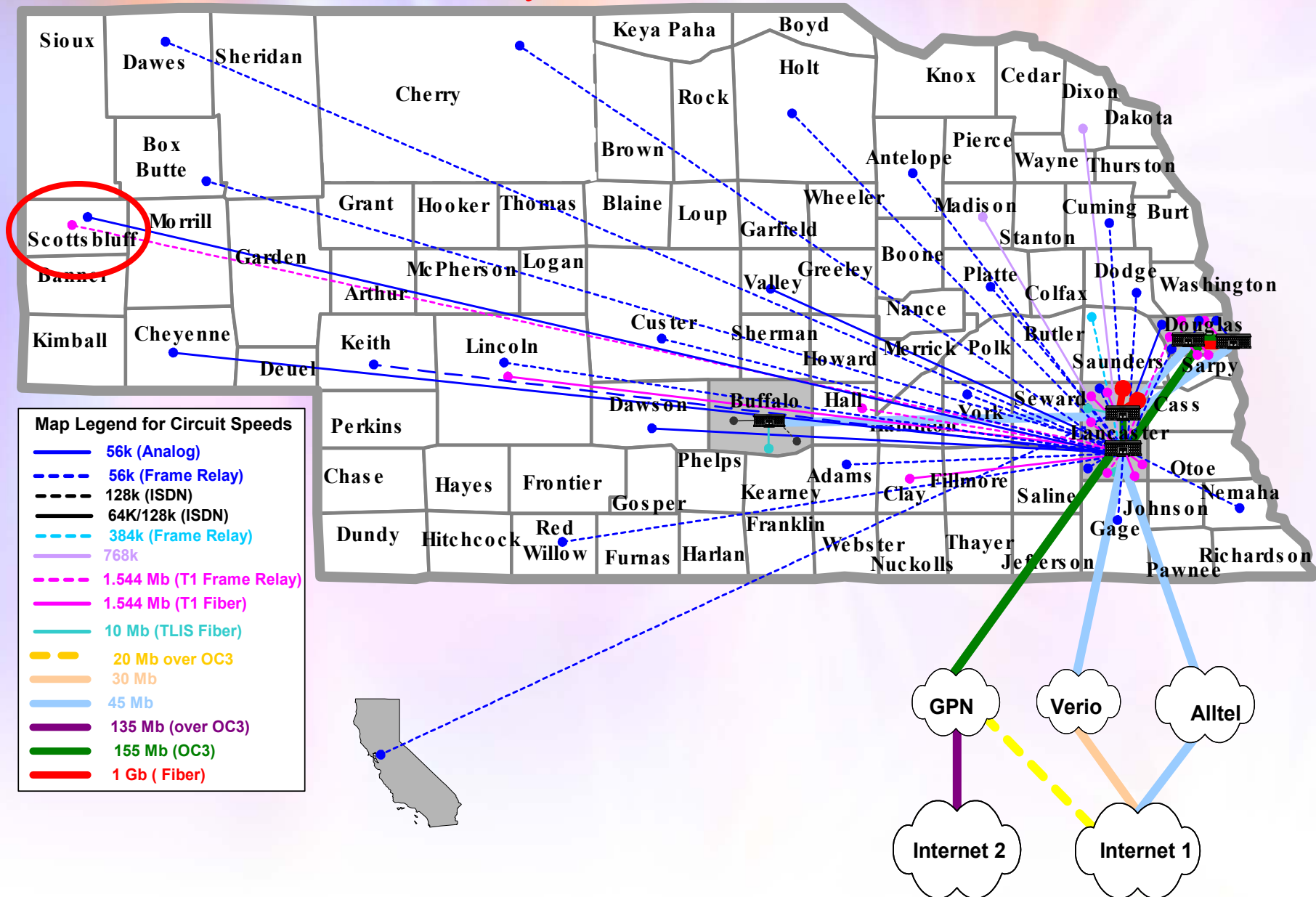
Education Focus



NETCOM

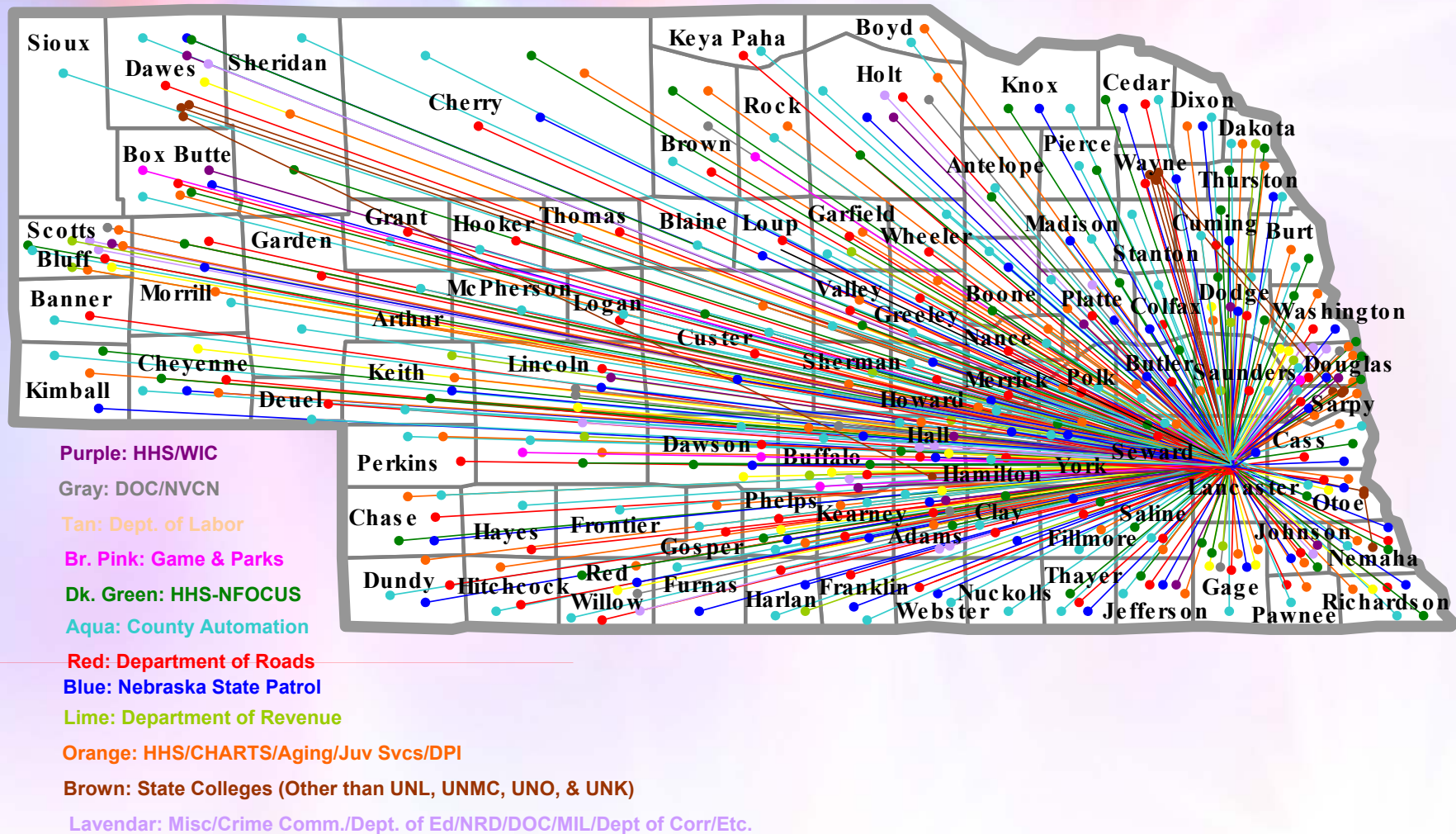
- Made up of:
 - Education - Nebraska Educational Network
 - State and Local Government
 - Community
- Concerns:
 - We still have a lot of non-believers out there who think we will never get this network built.
 - If, however, we can continue to get some improved connections in place we can advertise the fact that we are really doing something and we have the connections.
 - We then advise the local ESU's, state agencies and others that by joining forces we can provide better service at faster speeds for lower cost.

Current University of Nebraska Network



State of Nebraska

Widen Project State Networks



The Educational Network satisfies needs:

- **Base Infrastructure:**
 - Extending the common, every-day communications network currently prevalent throughout all campuses in the country to our University of Nebraska colleagues located across the state.
- **Equality:**
 - We believe that each of our University outreach and partner sites should be treated as an equal component of the University of Nebraska educational infrastructure.
 - Blackboard
 - Video Conferencing
 - Local Learning Centers

- Imagine the Law College facility (which is the size of our Scottsbluff operation) serviced by a communication line that only allowed one employee to access a video trial at any given time, and if it were broadcast in M-peg 2 quality, no one could access it. This is unacceptable.

- **Research:**

- Due to the collaborative nature of research and teaching, our higher education market now extends nationally and internationally, further increasing its size and scope and offering a powerful voice for best-in-class networking projects.
- The Internet (and initiatives such as Internet 2) has now fostered significant additional collaborative research, which often requires greater bandwidth to provide maximum synchronicity and video conferencing. This is very true at Clay Center where, thanks to our recent upgrade, they can participate in many more research activities.

- **On-Line learning.**
 - Besides the infrastructure needed for research collaboration, we also need greater capacity to promote online learning. Increasing numbers of faculty and students are now utilizing networks for their daily instruction. Lifelong learners who do not reside on campus will need to rely on fiber or cable to the home or local extension center to complete their studies and be part of the university community.
- **Priority:**
 - We are trying to build what the campuses are telling us they want. Improved intra-state networking is in the top five of all campuses IT priorities.
- **Competition:**
 - We must stay current to compete with Kansas, Missouri, and others who advertise that they are a technology advanced institution.

Collaborative Aggregation Partnership (CAP) “Desired” Core Backbone Sites

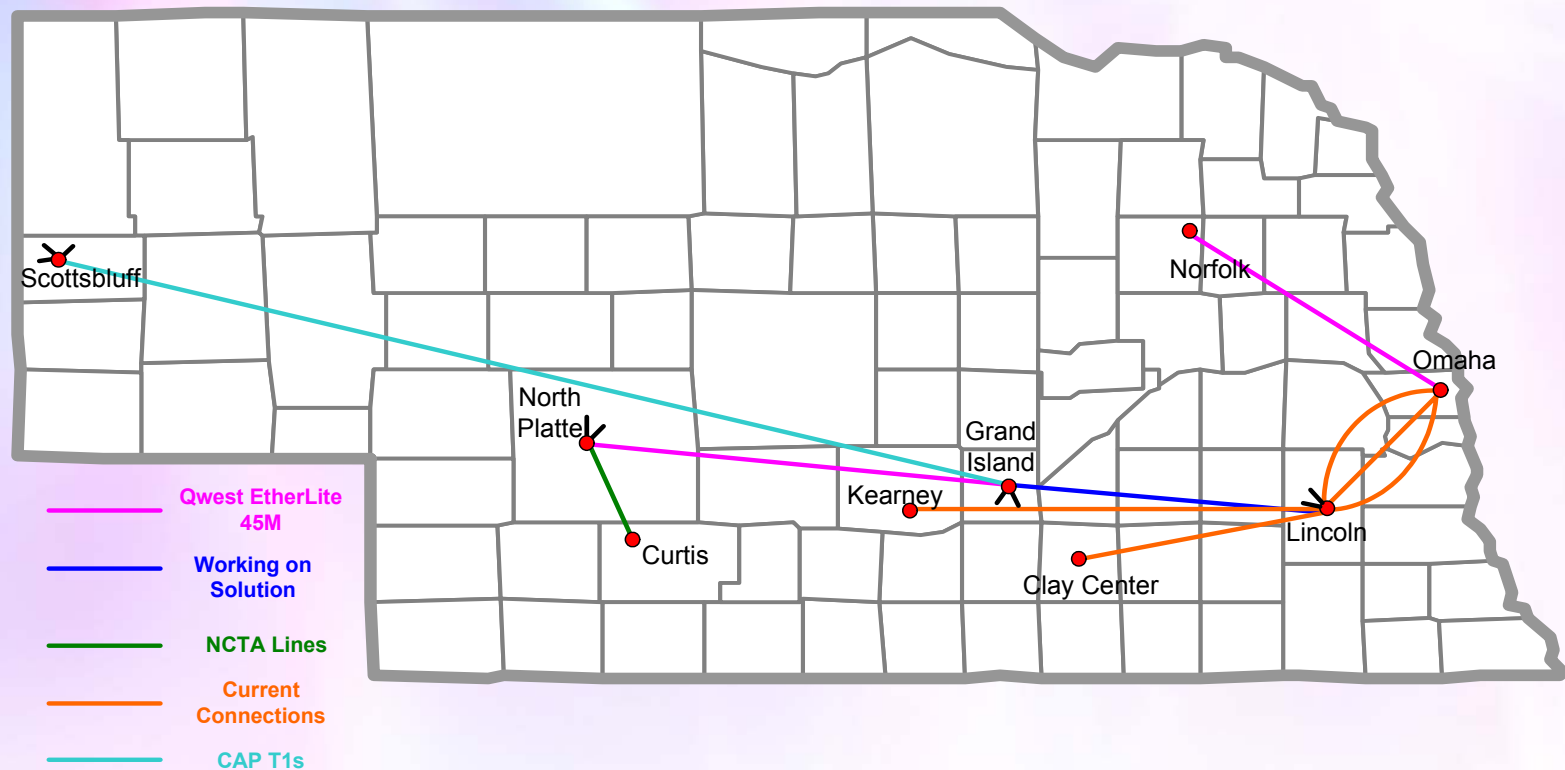


CAP Core Backbone Sites

September 01, 2002
with Extensions to Scottsbluff and Kearney



What the Nebraska Educational Network is putting together now. (The University)



University of Nebraska Networking Requirements

- Delivery of University services on a statewide basis.
 - connectivity to learning centers, IANR research and extension centers, cooperative extension.
- Research computing grids to facilitate research in bio-informatics, proteomics and other high priority fields.
- Enhanced video technology to support state of the art classrooms, conference rooms and video conferencing.
- Statewide network to support distance education, multimedia, shared resources.
- Multipoint video conferencing.
- IP Centric environment.
- Access to Internet 2
- Links to K-12, Healthcare.
- Network security.
 - HIPPA compliant
- Scalable bandwidth.
- Wireless.

UNIVERSITY OF
Nebraska

Internet Protocol "IP" Centric

- The University wants an IP centric network:
 - IP by itself is like the postal system
 - Breaks a message into Packets and provides addressing to and from
 - Runs on ATM, ISDN, Frame relay, Ethernet, X.25, Token Ring.
 - TCP/IP establishes a connection between two hosts so that they can send messages back and forth for a period of time.
- Why IP?
 - Allows the convergence of voice, video and data on one network.
 - Supports open standards
 - Support for advanced applications
 - Insures flexible network design
 - Can allow emerging technologies to participate
 - Supports local traffic exchange
 - MPLS (multiprotocol label switching) is a technology designed, in part, to address issues of security and QoS